ERM

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08628

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March 31, 2023

Mr. Danny Wong
Bureau of Stationary Sources
Preconstruction Permits Section
401 E. State Street, 2nd floor
Mail Code 401-02
Trenton, NJ 08625-0420

Dear Mr. Wong,

Environmental Resources management Inc. (ERM) submits this application package on behalf of EMR Advanced Recycling LLC (EMR) formerly Camden Iron & Metal Inc., which is requesting a modification to its Preconstruction Permit (PCP), PCP110005, to allow for the installation of control equipment at the EMR metals recycling facility (the Facility) located in Camden, New Jersey.

The Facility currently operates a Hammermill shredder (permitted as E102, Emission Unit U101 Ferrous Ops Ferrous Metal Operations) to break up larger scrap metal pieces for further processing. The shredder is permitted in the preconstruction permit approved by the Department in 2015.

The Facility intends to install additional control equipment to the existing shredder system to reduce potential emissions from the metals recycling process. The air pollution control system will be comprised of four (4) new control devices in series, including a cyclone, dual-stage fabric roll filter, regenerative thermal oxidizer, and packed tower scrubber. A new exhaust point (stack) will be installed, with the single discharge point on the exhaust side of the packed tower scrubber. It is requested that the current emission point for the shredder be removed from the permit and replaced with the new exhaust point. Mark-ups of PCP110005 have been provided in **Attachment A** to reflect this change.[1]

This application only addresses the installation of new control equipment, and there are no new process sources proposed at the Facility.

Emissions Information

Supporting emissions information for the post-control emissions from the shredder are provided in an Excel file included with this application submittal. The potential to emit (PTE) of the

[1] EMR is presently engaged in discussions with the U.S. Environmental Protection Agency, Region 2, and the New Jersey Department of Environmental Protection relating to a resolution of EPA's Notice of Violation issued to the Facility dated February 10, 2020. EMR does not admit any of the factual or legal assertions set forth in the NOV, and does not waive any defenses thereto. EMR reserves the right to supplement or amend the information contained in this application pending further discussions among the parties.

shredder system is based on a combined maximum annual operation of 5,616 hours per year (hr/yr) at the maximum rated processing capacity of the shredder, 440 tons per hour (tph). The Facility is basing projected emissions on a conservative uncontrolled inlet emission factor and representative control efficiencies based on stack test emissions data from similar facilities.[2] Post-control emissions will be confirmed via performance testing, and adjustments to permitted emission limits may be made at that time if necessary. With this application, which will reduce potential emissions through the use of controls, the Facility intends to continue utilizing the currently permitted Operating Scenario (OS102) for its Ferrous Ops Ferrous Metal Operations, but with the operation of the aforementioned control devices and improved exhaust point configuration. Based on the attached calculations and the relevant reporting thresholds in N.J.A.C. 7:27-8 Appendix 1, Table A and N.J.A.C. 7:27-17.9 Tables 3A and 3B, the reportable post-control criteria pollutants are NO_x, CO, VOC, and PM (TSP, PM_{10}, and $PM_{2.5}$), and twenty-seven HAPs.

Regulatory Review

The following is a brief analysis of the applicability (or non-applicability) of state and federal air pollution control regulations of particular relevance to the shredder operations.

Subchapter 4 – Particulates from Combustion of Fuel

N.J.A.C. 7:27-4 restricts emissions of particulate matter from fuel combustion sources with heat inputs greater than or equal to 1 MMBtu/hr, and sets maximum allowable emission rates based on the heat input rate of the source. Although there are particulate emissions associated with the currently permitted process, the Facility is not requesting any increase in particulate emissions associated with fuel combustion based on the standard in N.J.A.C. 7:27-4.2(a), or above the applicable reporting threshold of 0.05 lb/hr in Appendix 1, Table A of N.J.A.C. 7:27-8.

Subchapter 16 – VOC RACT & Subchapter 19 – NO_X RACT

The shredder is not currently subject to the numerical emission standards in the VOC RACT (N.J.A.C. 7:27-16) and NO_x RACT (N.J.A.C. 7:27-19) Rules. Further, no categorical RACT standard would apply. Although the RACT Rules do not apply to this application given that EMR is an existing facility that is not proposing to install a new process operation or otherwise increase emissions of VOC or NOx, EMR notes that the RTO proposed to be installed would have a minimum control efficiency of 95%, which would satisfy a facility-specific VOC control requirement as contemplated in Subchapter 16. Commissioning testing will further show that the shredder and associated control devices will meet the control requirements of N.J.A.C. 7:27-16 for VOC emissions. NOx emissions will only be present due to natural gas combustion in the RTO, which will also be demonstrated to be well below the SOTA threshold.

[2] We note in this context that actual emissions data for the Facility is not available, and we believe that current actual emissions are substantially lower than the uncontrolled inlet emission factor for VOC used in this application. However, a range of emission data has been developed across the industry, and we have chosen a mid-range emission factor on which to base this application.

Subchapter 17 – Control and Prohibition of Air Pollution by Toxic Substances and Hazardous Air Pollutants (i.e., Resiliency and Air Toxics (RATE Rule))

On January 16, 2018, revisions to NJDEP's air pollution control requirements known as the Resiliency and Air Toxics (RATE Rule) were published in the New Jersey Register (50 N.J.R. 454(a)). The effective changes become operative on February 12, 2018, requiring facilities to evaluate potential to emit (PTE) using the new HAP reporting thresholds in N.J.A.C. 7:27-17.9. Following a review of the speciated HAP PTE from the shredder, the Facility identified twenty-seven (27) newly reportable HAPs in **Attachment C**.

The Facility completed the Level 1 NJDEP Risk Screening Worksheet (RSW) for the pollutants above the reporting threshold, submitted as **Attachment D**. The Facility in the process of developing a refined risk assessment protocol, per Technical Manual 1003, for submittal to NJDEP Bureau of Evaluation and Planning (BEP) for review and approval.

Subchapter 18 – Emission Offset Rule

N.J.A.C. 7:27-18 (Subchapter 18) applies to certain new or modified sources located in both attainment and non-attainment areas. Certain facilities become subject to N.J.A.C. 7:27-18 when an application for authorization to construct, reconstruct, or modify control apparatus or equipment is submitted to the Department pursuant to N.J.A.C. 7:27-8 or N.J.A.C. 7:27-22.

The Facility is not considered a "major facility" because it does not have a potential to emit (PTE) for any air contaminants above established threshold levels. This application addresses the installation of new control equipment, and does not include any changes to the process operating equipment.

Therefore, pursuant to N.J.A.C. 7:27-18.2(a), the only way in which Subchapter 18 could be triggered is if the emission increases proposed in this application by itself equal or exceed the above-listed threshold levels. There are no emission increases proposed in this application; further, the proposed permitted potential emissions of regulated air contaminants addressed in Subchapter 18 do not exceed the thresholds identified therein.

Subchapter 8 – Permits and Certificates for Minor Facilities

Pursuant to N.J.A.C. 7:27-8.2(c)(19), the shredder is a significant source requiring a preconstruction permit and operating certificate because the equipment processes greater than 50 lb/hr of raw materials. The Facility currently operates pursuant to PCP110005.

State of the Art (SOTA)

Pursuant to N.J.A.C. 7:27-8.12, newly constructed, reconstructed, or modified equipment and control apparatus shall incorporate "advances in the art of air pollution control". This is commonly referred to as the State-of-The-Art (SOTA) requirement. Documentation of SOTA is required for equipment with a PTE for any pollutant that meets or exceeds the applicable SOTA emission thresholds specified in either Appendix 1, Table A of N.J.A.C. 7:27-8 or

N.J.A.C. 7:27-17.9(b). SOTA does not apply to the installation of control equipment, where the resulting effect will be a decrease in emissions, rather than an increase. Nonetheless, the proposed control system will meet the principles of SOTA. Initial performance testing will demonstrate effective control of relevant pollutants, consistent with SOTA.

The Facility proposes to install a control system comprised of four types of pollution control equipment to reduce emissions. Particulate matter will be treated by a cyclone and dual stage filter roll media. VOCs will be oxidized in a regenerative thermal oxidizer (RTO), and acid gases will be subsequently controlled via a packed tower scrubber. These controls provide for a high level of performance for the target pollutants and will be operated in series to meet SOTA level requirements.

There is not a long history of shredder recycling operations like the one at this Facility being controlled, and neither EPA nor NJDEP have established emission standards or other regulatory requirements for the control of emissions from shredding operations. EPA recently issued[3] an alert that summarized air pollution control strategies for metal shredder operations. In this alert, EPA indicated that the control system required a multi-stage approach, with the first phase to control metal particles typically using a cyclone, scrubber or fabric filter. For this application, the Facility will use a cyclone and a dual stage fabric filter roll to control metal particulate emissions. Following particulate control, the EPA alert indicates that an RTO is recommended for VOC control. The EPA alert goes on to state that the final phase of the control train is usually a scrubber to control acid gases, such as hydrogen chloride and hydrogen fluoride. In addition, EPA guidance documents (including EPA/452/B-02-001) indicate that absorbers (i.e., scrubbers) are used extensively for water soluble inorganic contaminants (i.e., acid gases) from gas streams. This assertion in EPA documents further supports the use of a packed tower scrubber for acid gas removal as the most effective means to control such emissions. Other potential options to control acid gases would not be as effective as a packed tower scrubber, in particular at the high flow rate associated with the shredder process at the Facility. Therefore, given a packed tower scrubber provides control for hydrogen fluoride and hydrogen chloride at levels equal to, or greater than, other potential options, no additional evaluation is provided in this application with respect to SOTA for acid gases.

The Facility control system follows the blueprint identified in the EPA alert, and as such is proposed as SOTA to satisfy the N.J.A.C. requirements.

Monitoring

The introduction of controls includes a capture design to provide for consolidation of shredder emissions into a combined exhaust stream for conveyance and delivery to the emissions control system. The capture and control system are designed to deliver the flow required to maintain a minimum face velocity across all (natural draft) openings to achieve capture of shredder emissions. The facility will monitor flow from the capture system to the control system to

[3] USEPA, Office of Enforcement and Compliance Assurance, Publication no. EPA 310-F-21-003, *Violations at Metal Recycling Facilities Cause Excess Emissions in Nearby Communities,* July 2021.

demonstrate that sufficient flow is provided to maintain the minimum face velocity. The face area of the openings are fixed, such that the minimum flow can be calculated as a set point for the system. Flow measurements will be monitored continuously in the main exhaust ductwork from the capture system prior to the first control device. The location of the flow monitor will be defined by the device supplier to ensure adherence to the straight run requirements of the device.

As presented earlier, the control system is comprised of multiple pieces of equipment to address particulate matter (cyclone and dual stage filter), organics (regenerative thermal oxidizer), and acid gases (packed tower scrubber). The facility intends to monitor surrogate parameters to demonstrate each control device is operating in compliance.

For the cyclone and dual stage filter, the facility will measure the pressure drop across each device. Upon final design, the equipment supplier shall provide a minimum and maximum pressure drop range to establish the monitoring levels required to demonstrate the equipment is working in a manner to achieve the maximum control achievable.

Following the particulate treatment system, a regenerative thermal oxidizer (RTO) will be used to oxidize volatile organic compounds. The RTO combustion chamber provides for a sufficiently high temperature environment for a minimum period of time under turbulent conditions to oxidize VOCs. The operating parameters that will be monitored to demonstrate performance include the combustion chamber temperature and the flow rate at the inlet to the RTO. The minimum combustion chamber temperature will be determined based on equipment supplier recommendations and/or the results of performance testing, if required. The combustion chamber temperature is a key indicator of performance for an RTO and defines the ability of the equipment to maintain a high level of destruction. The flow rate to the RTO will be measured to demonstrate the minimum residence time is maintained.

Through the process of oxidation of certain VOCs in the RTO, there may be acid gases generated, such as hydrogen chloride and hydrogen fluoride. A packed tower scrubber will be used to control acid gas emissions resulting from the oxidation of certain pollutants in the RTO. The scrubber provides a mechanism to transfer components from the gas phase to the liquid phase. The ability of the scrubber to achieve high levels of control relies on the ability of the liquid (absorbent) to remove the pollutant from the gaseous phase. The scrubber liquid flow rate is a critical operating parameter in the design and operation of a scrubber. As such, the scrubber recirculation flow rate will be monitored to demonstrate performance, with the minimum flow rate determined based on equipment supplier recommendations and/or the results of performance testing, if required. In addition, for scrubbers controlling acid gases, the pH level of the recirculating fluid is also important to performance. Therefore, pH of the recirculating liquid will also be monitored.

<u>Monitoring Approach Summary</u>

- System flow measured provides an indicator of face velocity and thus capture at the source.
- Cyclone and filter pressure drop monitoring indicates particulate controls are operating within the design operational range.

- RTO combustion temperature monitoring provides an indicator of destruction efficiency, along with flow rate to verify residence time.
- Scrubber liquor recirculation flow rate and pH are monitored to demonstrate scrubber performance.

40 CFR 60 – New Source Performance Standards (NSPS) and 40 CFR 63 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

New Source Performance Standards (NSPS) establish emission limits and other requirements for specific types of new, modified, or reconstructed sources, and National Emission Standards for Hazardous Air Pollutants (NESHAP) are emission standards established by USEPA to reduce emissions of HAPs from specific source categories. There are no specific NSPS or NESHAP requirements applicable to this permitting action. The Facility is an area HAP source because it does not have potential HAP emissions of 10 tons/yr or more of any single HAP or 25 tons/yr or more of any combination of HAPs.

Air Permit Application

This PCP modification application includes a RADIUS file for electronic submission on the NJDEP Online Portal. This revised application was completed using RADIUS 5.0. The four (4) control devices (CD1-CD4), with the new emission points (PT281) have been added to the RADIUS file. The RADIUS includes the added control equipment and details to be added to the current PCP upon approval. The control devices details have been filled out with design specifications that will meet the requirements outlined herein, including SOTA. At this point in the project however, details such as manufacturer and model number are not yet known and have been left either blank or written in as "TBD". In addition, as the vendor selection process moves forward, details regarding the control equipment may require revision to align with the final design of the controls.

A pdf of the RADIUS application is provided in **Attachment B**. A calculations workbook is provided in **Attachment C.** Please invoice the Facility for any applicable air permitting fees.

If you have any questions or require any additional information, please contact Cynthia McKeown at 609-209-2942, Josh Hemperly of ERM at 609-403-7554 at your convenience.

Sincerely,

Mark DiPrinzio, P.E.
Technical Director

cc: Cynthia McKeown, EMR

Enclosures:

Attachment A – PCP110005 Mark-ups
Attachment B – RADIUS PDF
Attachment C – Potential-To-Emit (PTE) Calculations Excel workbook
Attachment D - Level 1 NJDEP Risk Screening Worksheet

Attachment A – PCP110005 Mark-ups

Air Pollution Control

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT of ENVIRONMENTAL PROTECTION
Division of Air Quality
Bureau of Air Permits
401 E. State Street, 2nd floor, P.O. Box 420, Mail Code 401-02
Trenton, NJ 08625-0420

BOB MARTIN
Commissioner

Preconstruction Permit and Certificate to Operate
Revision

EMR Advanced Recycling, LLC.

Permit Activity Number: PCP110005 **Program Interest No: 50023**

Mailing Address	Plant Location
JOSEPH BALZANO PRESIDENT CAMDEN IRON & METAL INC PO BOX 496 - 1500 S 6TH ST Camden, NJ 08101-0496	~~CAMDEN IRON & METAL INC~~ Front St & Atlantic Ave Camden City Camden County, New Jersey

Approval Date: 02/03/2012
Expiration Date: 05/08/2016

The New Jersey Department of Environmental Protection (Department) has reviewed the above referenced air pollution control permit application. On the basis of the information provided, the Department concludes that the application satisfies all applicable requirements of the New Jersey Air Pollution Control regulations codified at N.J.A.C. 7:27 et seq. This Air Pollution Control Permit modification shall supersede any existing Air Pollution Control Permits issued for the specified source. This permit allows for inspection and evaluation of the equipment by the Department to assure conformance with all provisions of N.J.A.C. 7:27 et seq. and any other applicable federal requirements codified at 40 CFR 52, 60, 61 and 63.

This approval changes certain portions of the previously approved preconstruction permit, and this action does not change the current expiration date of the permit. This approval results in a permit that has replaced the one previously issued, Activity Number PCP 110003

The equipment, that is authorized to be installed and operated under this approval, is described in Section A, Source Operations and Section D, Equipment Inventory. Equipment at the facility referenced by this Permit shall be operated in accordance with the Conditions of Approval set forth in Section D, Facility Specific Requirements.

The Department hereby issues this permit and certificate under the authority of chapter 106, P.L. 1967(N.J.S.A 26:2C-9.2). You may construct, reconstruct, install, or modify the above referenced equipment and/or control apparatus consistent with the approval.

The approved Permit is available for download in PDF format which contains the facility's specific requirements (compliance plan) at: http://www.nj.gov/dep/aqpp. After accessing the web site, click on "Approved PCP Permits" listed under "Reports" and then type in your Program Interest (PI) Number, 50023, as instructed on the screen. You will be able to view, print or electronically store your permit. If you have any questions regarding this permit

EMR Advanced Recycling, LLC.

~~**CAMDEN IRON & METAL INC** **(50023)**~~
PCP110005

Date: 2/3/2012

New Jersey Department of Environmental Protection
Reason for Application

Permit Being Modified

Permit Class: PCP **Number:** 110003

Description of Modifications:

Camden Iron & Metal proposes to modify the Non-Ferrous Separation Plant by adding new equipment/systems, changing the process rates in tons per hour and revising the process flow diagrams. This will allow the facility to increase the amount of non-ferrous metals recovered and recycled. The emission increase will be minimal from 2.56 tons per year to 3.29 tons per year TSP and from 0.86 to 1.10 tons per year PM-10.
The existing equipment E201-E218 is permitted under PCP #110003 the capacity in tons per hour has been modified for this equipment. In addition the Process Flow Diagram has changed for the Non-Ferrous Metal Operations.

The following equipment has been added to the Non-Ferrous Metal Operations E219 through E280.

Processing of non-ferrous materials at 6th and Atlantic Avenue (PCP 960001) will be discontinued after the non-ferrous operations at the Front and Atlantic Avenue begins operation.

All ASR material stockpiles on-site will be stored in a building with walls on three sides.

Please change to "EMR Advanced Recycling, LLC." on all permit page headers

~~CAMDEN IRON & METAL INC~~ **(50023)**
PCP110005

Date: 2/3/2012

New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): ~~Camden Iron and Metal Inc.~~ EMR Advanced Recycling, LLC.

Facility ID (AIMS): 50023

Street Address: FRONT ST AND ATLANTIC AVE
CAMDEN, NJ 08104

Mailing Address: PO BOX 496
CAMDEN, NJ 08101-0496

State Plane Coordinates:

X-Coordinate:	75
Y-Coordinate:	40
Units:	Dec. Deg.
Datum:	NAD27
Source Org.:	Other/Unknown
Source Type:	Hard Copy Map

County: Camden

Location Description: From I-676 take Atlantic Ave. west to Front Street, turn left into facility.

Industry:

Primary SIC:	
Secondary SIC:	
NAICS:	423930

CAMDEN IRON & METAL INC (50023)
PCP110005

Date: 2/3/2012

New Jersey Department of Environmental Protection
Emission Points Inventory

Please delete PT102

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT101	Conveyor 101	Infeed Conveyor	Surface	0	39	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
~~PT102~~	~~Shredder~~	~~Shredder Equivalent Stack~~	~~Rectangle~~	~~69~~	~~25~~	~~250~~	~~70.0~~	~~70.0~~	~~110.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~Up~~	
PT103	Conveyor 103	Conveyor	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT104	Separator	Magnetic Separator System	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT105	Conveyor 105	Non-ferrous Transfer Conveyor	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT106	Conveyor 106	Cascade System Feed Conveyor	Surface	0	26	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT107	Conveyor 107	Reclaim Ferrous Conveyor	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT108	Cascade	Cascade Separation System	Surface	0	26	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT109	Conveyor 109	Nonferrous Transfer Conveyor	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT110	Flow Split 1	Flow Splitter System No 1	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT111	Flow Split 2	Flow Splitter System No 2	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT112	Flow Split 3	Flow Splitter System No 3	Surface	0	25	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT113	Inspection 1	Inspection Conveyor No 1	Surface	0	9	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT114	Inspection 2	Inspection Conveyor No 2	Surface	0	9	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT115	Inspection 3	Inspection Conveyor No 3	Surface	0	9	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT116	Inspection 4	Inspection Conveyor No 4	Surface	0	9	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT117	Conveyor 117	Ferrous Product Stackinf Conveyor System	Surface	0	26	250	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT201	Feeder 1	Hopper/ Feeder No 1	Surface	0	15	100	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	
PT202	Conveyor 202	Feed Conveyor	Surface	0	30	100	70.0	70.0	70.0	0.0	0.0	0.0	Horizontal	

CAMDEN IRON & METAL INC (50023)
PCP110005

Date: 2/3/2012

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 101 Ferrous Ops Ferrous Metal Operations

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS101	Infeed Conve	Infeed Conveyor	Normal - Steady State	E101	CD102 (P)	PT101	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS102	Shredder	Hammermill Shredder	Normal - Steady State	E102	~~CD101 (P)~~ ~~CD102 (S)~~	~~PT102~~	3-99-999-89	6,000.0	8,760.0		0.0	~~0.0~~	~~70.0~~	~~110.0~~
OS103	Vib Conv	Vibrating Conveyor	Normal - Steady State	E103	CD102 (P)	PT103	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS104	Mag Sep	Magnetic Separation System	Normal - Steady State	E104		PT104	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS105	Non Fe Con	Non-Ferrous Transfer Conveyor	Normal - Steady State	E105		PT105	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS106	Cas Feed Con	Cascade Feed Conveyor	Normal - Steady State	E106		PT106	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS107	Re Fe Con	Reclaim Ferrous Conveyor	Normal - Steady State	E107		PT107	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS108	Cas Sep Sys	Cascade Separation System	Normal - Steady State	E108		PT108	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS109	Trans Conv	Non-Ferrous Transfer Conveyor	Normal - Steady State	E109		PT109	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS110	Flow Split 1	Flow Splitter #1	Normal - Steady State	E110		PT110	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS111	Flow Split 2	Flow Splitter #2	Normal - Steady State	E111		PT111	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS112	Flow Split 3	Flow Splitter #3	Normal - Steady State	E112		PT112	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS113	I Conv 1	Inspection Conveyor #1	Normal - Steady State	E113		PT113	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS114	I Conv 2	Inspection Conveyor #2	Normal - Steady State	E114		PT114	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0
OS115	I Conv 3	Inspection Conveyor #3	Normal - Steady State	E115		PT115	3-99-999-89	6,000.0	8,760.0		0.0	0.0	70.0	70.0

80,000
75
125

Attachment B – RADIUS PDF

EMR Advanced Recycling LLC (50023)

Date: 3/31/2023

New Jersey Department of Environmental Protection
Reason for Application

Permit Being Modified

Permit Class: PCP **Number:** 110005

Description of Modifications: EMR Advanced Recycling LLC (formerly Camden Iron & Metal Inc.) hereby submits this application to revise the preconstruction permit by adding control device equipment to the existing metals shedder. The control equipment will be comprised of multiple units in series, including a cyclone, fabric roll filter, regenerative thermal oxidizer and packed tower scrubber. A new exhaust point (stack) will be required, with the single discharge point on the exhaust side of the packed tower scrubber.

New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): EMR Advanced Recycling LLC **Facility ID (AIMS):** 50023

Street Address: 1400 SOUTH FRONT ST
CAMDEN, NJ 08104

Mailing Address: 201 NORTH FRONT ST
CAMDEN, NJ 08102

State Plane Coordinates:

X-Coordinate:	75
Y-Coordinate:	40
Units:	Dec. Deg.
Datum:	NAD27
Source Org.:	Other/Unknown
Source Type:	Hard Copy Map

County: Camden

Location Description: From I-676 take Atlantic Ave. west to Front Street, turn left into facility.

Industry:

Primary SIC:	
Secondary SIC:	
NAICS:	423930

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: Air Permit Information Contact

Organization: EMR Advanced Recycling LLC
Org. Type: Corporation
Name: Cynthia McKeown
NJ EIN:
Title: EHS Director
Phone: (856) 365-7500 x
Fax: ( ) - x
Other: (609) 209-2942 x
Type: Mobile
Email: cynthia.mckeown@emrgroup.com
Mailing Address: 201 NORTH FRONT STREET
CAMDEN, NJ 08102

Contact Type: Environmental Officer

Organization: EMR Advanced Recycling LLC
Org. Type: Corporation
Name: Cynthia McKeown
NJ EIN:
Title: EHS Director
Phone: (856) 365-7500 x
Fax: ( ) - x
Other: (609) 209-2942 x
Type: Mobile
Email: cynthia.mckeown@emrgroup.com
Mailing Address: 201 NORTH FRONT STREET
CAMDEN, NJ 08102

Contact Type: Fees/Billing Contact

Organization: EMR Advanced Recycling LLC
Org. Type: Corporation
Name: Cynthia McKeown
NJ EIN:
Title: EHS Director
Phone: (856) 365-7500 x
Fax: ( ) - x
Other: (609) 209-2942 x
Type: Mobile
Email: cynthia.mckeown@emrgroup.com
Mailing Address: 201 NORTH FRONT STREET
CAMDEN, NJ 08102

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: **Responsible Official**

Organization: EMR Advanced Recycling LLC

Org. Type: Corporation

Name: Stephen Deacon

NJ EIN:

Title: COO

Phone: (856) 365-7500 x

Fax: ( ) - x

Other: ( ) - x

Type:

Email: stephen.deacon@emrgroup.com

Mailing Address: 201 NORTH FRONT STREET
Camden, NJ 08102

New Jersey Department of Environmental Protection
Facility Profile (Permitting)

1. Is this facility classified as a small business by the USEPA?	No
2. Is this facility subject to N.J.A.C. 7:27-22?	No
3. Are you voluntarily subjecting this facility to the requirements of Subchapter 22?	No
4. Has a copy of this application been sent to the USEPA?	No
5. If not, has the EPA waived the requirement?	Yes
6. Are you claiming any portion of this application to be confidential?	No
7. Is the facility an existing major facility?	No
8. Have you submitted a netting analysis?	No
9. Are emissions of any pollutant above the SOTA threshold?	No
10. Have you submitted a SOTA analysis?	No
11. If you answered "Yes" to Question 9 and "No" to Question 10, explain why a SOTA analysis was not required	
12. Have you provided, or are you planning to provide air contaminant modeling?	No

EMR Advanced Recycling LLC (50023) Date: 3/31/2023

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E102	Infeed Conv	Hamermill Shredder	Manufacturing and Materials Handling Equipment	PCP110003	2/16/2011	No		

EMR Advanced Recycling LLC (50023) Date: 3/31/2023

New Jersey Department of Environmental Protection
Control Device Inventory

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand-Fathered	Last Mod. (Since 1968)	CD Set ID
CD1	Cyclone	High Eff Cyclone	Cyclone				
CD2	Filter	Filter	Particulate Filter (Other)				
CD3	Shredder RTO	Shredder RTO	Oxidizer (Thermal)				
CD4	Scrubber	Scrubber	Scrubber (Packed Tower)				

000000 CD1 (Cyclone)
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Unit Type:	Single
Description:	
Major Cylinder Diameter, Dc (ft):	13.00
Major Cylinder Length, Lc (ft):	16.00
Gas Outlet Diameter, De (ft):	4.80
Gas Inlet Height, He (ft):	6.50
Gas Inlet Width, Bc (ft):	5.00
Gas Outlet Length, Hc + Sc [usually 5/8 Dc] (ft):	8.00
Cone Length, Zc (ft):	26.00
Dust Outlet, Jc (ft):	4.80
Effective Number of Turns, Ne:	5
Inlet Gas Velocity, Vi (ft/min):	4,500.00
True Particle Density (lbs/ft³):	
Average Particle Size (micrometers):	
Gas Temperature (°F):	125.0
Have you attached a Particle Size Distribution Analysis?	○ Yes ● No
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Comments:	

000000 CD2 (Particulate Filter (Other))
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Filter Description:	Two-stage filter unit using roll filter media
Total Filter Area (ft²):	250.00
Maximum Design Temperature Capability (°F):	135.0
Maximum Design Air Flow Rate (acfm):	75,000.0
Maximum Air Flow Rate to Filter Area Ratio:	
Minimum Operating Pressure Drop (in. H2O):	
Maximum Operating Pressure Drop (in. H2O):	
Maximum Inlet Temperature (°F):	125.0
Maximum Operating Exhuast Gas Flow Rate (acfm):	75,000.0
Method for Determining When Filter Replacement is Required:	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	○ Yes ● No
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Comments:	

000000 CD3 (Oxidizer (Thermal))
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Minimum Chamber Temperature (°F):	1500.0
Minimum Residence Time (sec):	0.50
Fuel Type:	Natural gas
Description:	
Maximum Rated Gross Heat Input (MMBtu/hr):	21.00
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Comments:	

000000 CD4 (Scrubber (Packed Tower))
Print Date: 3/31/2023

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Is the Scrubber Used for Particulate Control?	○ Yes ● No
Is the Scrubber Used for Gas Control?	● Yes ○ No
Is the Scrubber Equipped with a Mist Eliminator?	○ Yes ● No
Minimum Pump Discharge Pressure (in. H20):	
Maximum Pump Discharge Pressure (in. H20):	
Method of Monitoring Pump Discharge Pressure:	
Minimum Pump Current (amps):	
Maximum Pump Current (amps):	
Method of Monitoring Pump Current:	
Minimum Scrubber Medium Inlet Pressure (in. H20):	6.00
Minimum Operating Liquid Flow Rate (gpm):	
Maximum Operating Liquid Flow Rate (gpm):	800.00
Method of Monitoring Liquid Flow Rate:	Flowmeter
Minimum Operating Gas Flow Rate (acfm):	18,750.00
Maximum Operating Gas Flow Rate (acfm):	85,000.00
Method of Monitoring Gas Flow Rate:	
Minimum Operating Pressure Drop (in. H20):	1.00
Maximum Operating Pressure Drop (in. H20):	5.00
Method of Monitoring Pressure Drop:	Manometer
Relative Direction of the Gas-Liquid Flow:	Counter-Current
Description:	
Height of Packed Section (ft):	6.00
Type of Packing Material:	Q-PAC Saddles or Equivalent
Size of Packing Material (in):	
Tower Diameter (ft):	
Total Tower Height (ft):	13.00
Maximum Operating Temperature of the Inlet Gas (°F):	125.0
Maximum Operating Temperature of the Exhuast Gas(°F):	115.0
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or	

effectiveness of this control apparatus?

○ Yes ● No

Comments:

EMR Advanced Recycling LLC (50023)

Date: 3/31/2023

New Jersey Department of Environmental Protection
Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT281	Shred Stack	Hammermill Shredder Control Stack	Round	100	72	100	100.0	75.0	125.0	65,000.0	0.0	85,000.0	Up	

EMR Advanced Recycling LLC (50023)

Date: 3/31/2023

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 101 Ferrous Ops Ferrous Metal Operations

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS102	Shredder	Hammermill Shredder	Normal - Steady State	E102	CD1 (P) CD2 (P) CD3 (P) CD4 (P)	PT281	3-99-999-89	2,496.0	5,616.0		0.0	75,000.0	75.0	125.0

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: U101 Ferrous Ops

Operating Scenario: OS0 Summary

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Tetrachloroethane (1,1,2,2-)			0.00707600	0.00707600	tons/yr	No
Dichloroethane (1,2-)			0.00700900	0.00700900	tons/yr	No
Butadiene (1,3-)			0.00704800	0.00704800	tons/yr	No
Trichloroethane (1,1,2)			0.00715800	0.00715800	tons/yr	No
Acrolein			0.00698300	0.00698300	tons/yr	No
Acrylonitrile			0.00701600	0.00701600	tons/yr	No
Allyl chloride			0.00703800	0.00703800	tons/yr	No
Arsenic compounds			0.00095080	0.00095080	tons/yr	No
Benzene			0.04750000	0.04750000	tons/yr	No
Benzyl chloride			0.00703400	0.00703400	tons/yr	No
Beryllium compounds			0.00009966	0.00009966	tons/yr	No
Cadmium compounds			0.00038470	0.00038470	tons/yr	No
Carbon tetrachloride			0.00707400	0.00707400	tons/yr	No
Chloroform			0.00709200	0.00709200	tons/yr	No
Chromium (Hexavalent) Emissions			0.00008958	0.00008958	tons/yr	No
Cobalt compounds			0.00003114	0.00003114	tons/yr	No
CO			1.85000000	1.85000000	tons/yr	No
Dibromo-3-chloropropane (1,2-)			0.00724600	0.00724600	tons/yr	No
Dimethylbenz(a)anthracene (7,12-)			0.00000138	0.00000138	tons/yr	No
Ethylbenzene			0.26790000	0.26790000	tons/yr	No
Ethylene dibromide			0.00720000	0.00720000	tons/yr	No
Formaldehyde			0.58500000	0.58500000	tons/yr	No
Hexachlorobutadiene			0.00699600	0.00699600	tons/yr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS0 Summary**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Hydrogen chloride			0.44930000	0.44930000	tons/yr	No
Hydrogen fluoride			0.47740000	0.47740000	tons/yr	No
Lead compounds			0.00469800	0.00469800	tons/yr	No
Manganese compounds			0.00825100	0.00825100	tons/yr	No
Mercury compounds			0.00150000	0.00150000	tons/yr	No
Methyl alcohol (Methanol)			3.84200000	3.84200000	tons/yr	No
Naphthalene			0.04832000	0.04832000	tons/yr	No
Nickel compounds			0.01730000	0.01730000	tons/yr	No
NOx (Total)			2.20000000	2.20000000	tons/yr	No
PM-10 (Total)			15.42000000	15.42000000	tons/yr	No
Polychlorinated biphenyls (PCBs)			0.00219000	0.00219000	tons/yr	No
Propylene dichloride			0.00692900	0.00692900	tons/yr	No
SO2			D	D	tons/yr	No
Styrene			0.18890000	0.18890000	tons/yr	No
Trichloroethylene			0.05036000	0.05036000	tons/yr	No
Toluene			1.31000000	1.31000000	tons/yr	No
TSP			15.46000000	15.46000000	tons/yr	No
VOC (Total)			15.57000000	15.57000000	tons/yr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS102**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Tetrachloroethane (1,1,2,2-)			0.00161600	0.00161600	lb/hr	No
Dichloroethane (1,2-)			0.00160000	0.00160000	lb/hr	No
Butadiene (1,3-)			0.00160900	0.00160900	lb/hr	No
Trichloroethane (1,1,2)			0.00163400	0.00163400	lb/hr	No
Acrolein			0.00159400	0.00159400	lb/hr	No
Acrylonitrile			0.00160200	0.00160200	lb/hr	No
Allyl chloride			0.00160700	0.00160700	lb/hr	No
Arsenic compounds			0.00021710	0.00021710	lb/hr	No
Benzene			0.01690000	0.01690000	lb/hr	No
Benzyl chloride			0.00160600	0.00160600	lb/hr	No
Beryllium compounds			0.00002275	0.00002275	lb/hr	No
Cadmium compounds			0.00008784	0.00008784	lb/hr	No
Carbon tetrachloride			0.00161500	0.00161500	lb/hr	No
Chloroform			0.00161900	0.00161900	lb/hr	No
Chromium (Hexavalent) Emissions			0.00002045	0.00002045	lb/hr	No
Cobalt compounds			0.00000711	0.00000711	lb/hr	No
CO			0.66000000	0.66000000	lb/hr	No
Dibromo-3-chloropropane (1,2-)			0.00165400	0.00165400	lb/hr	No
Dimethylbenz(a)anthracene (7,12-)			0.00000049	0.00000049	lb/hr	No
Ethylbenzene			0.06116000	0.06116000	lb/hr	No
Ethylene dibromide			0.00164400	0.00164400	lb/hr	No
Formaldehyde			0.20800000	0.20800000	lb/hr	No
Hexachlorobutadiene			0.00159700	0.00159700	lb/hr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS102**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Hydrogen chloride			0.10260000	0.10260000	lb/hr	No
Hydrogen fluoride			0.10900000	0.10900000	lb/hr	No
Lead compounds			0.00107300	0.00107300	lb/hr	No
Manganese compounds			0.00188400	0.00188400	lb/hr	No
Mercury compounds			0.00034250	0.00034250	lb/hr	No
Methyl alcohol (Methanol)			0.87720000	0.87720000	lb/hr	No
Naphthalene			0.01720000	0.01720000	lb/hr	No
Nickel compounds			0.00395000	0.00395000	lb/hr	No
NOx (Total)			0.78000000	0.78000000	lb/hr	No
PM-10 (Total)			5.49000000	5.49000000	lb/hr	No
Polychlorinated biphenyls (PCBs)			0.00050010	0.00050010	lb/hr	No
Propylene dichloride			0.00158200	0.00158200	lb/hr	No
SO2			D	D	lb/hr	No
Styrene			0.04312000	0.04312000	lb/hr	No
Trichloroethylene			0.01150000	0.01150000	lb/hr	No
Toluene			0.46600000	0.46600000	lb/hr	No
TSP			5.51000000	5.51000000	lb/hr	No
VOC (Total)			5.54000000	5.54000000	lb/hr	No

New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS0 Summary**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
PM-2.5 (Total)			15.42000000	15.42000000	tons/yr	No

Subject Item: **U101 Ferrous Ops**

Operating Scenario: **OS102**

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
PM-2.5 (Total)			5.49000000	5.49000000	lb/hr	No

Attachment C – Potential-to-Emit Calculations

Shredder Emissions Summary
EMR Metal Recycling
March 31 2023

Critera Pollutant	Annual Emissions (TPY)	Hourly Emissions (lb/hr)
TPM	15.46	5.51
NOX	2.20	0.78
CO	1.85	0.66
PM10	15.42	5.49
PM2.5	15.42	5.49
NM VOC	15.57	5.54
SO_2	D	D

HAP	Annual Emissions (TPY)	Hourly Emissions (lb/hr)
1,1,2,2-Tetrachloroethane	7.08E-03	2.52E-03
1,1,2-Trichloroethane	7.16E-03	2.55E-03
1,2-Dibromo-3-chloropropane	7.25E-03	2.58E-03
1,2-Dibromoethane	7.20E-03	2.56E-03
1,2-Dichloroethane	7.01E-03	2.50E-03
1,2-Dichloropropane	6.93E-03	2.47E-03
1,3-Butadiene	7.05E-03	2.51E-03
3-Chloro-1-propene	7.04E-03	2.51E-03
7,12-Dimethylbenz(a)anthracene	1.38E-06	4.90E-07
Acrolein	6.98E-03	2.49E-03
Acrylonitrile	7.02E-03	2.50E-03
Arsenic	9.51E-04	3.39E-04
Benzene	4.75E-02	1.69E-02
Benzyl chloride	7.03E-03	2.51E-03
Beryllium	9.97E-05	3.55E-05
Cadmium	3.85E-04	1.37E-04
Carbon Tetrachloride	7.07E-03	2.52E-03
Chloroform	7.09E-03	2.53E-03
Chromium (hexavalent)	8.96E-05	3.19E-05
Cobalt	3.11E-05	1.11E-05
Ethyl benzene	2.68E-01	9.54E-02
Formaldehyde	5.85E-01	2.08E-01
Hexachlorobutadiene	7.00E-03	2.49E-03
Hydrogen fluoride	4.77E-01	1.70E-01
Hydrochloric Acid	4.49E-01	1.60E-01
Lead	4.70E-03	1.67E-03
Manganese	8.25E-03	2.94E-03
Mercury	1.50E-03	5.34E-04
Methanol	3.84E+00	1.37E+00
Naphthalene	4.83E-02	1.72E-02
Nickel	1.73E-02	6.16E-03
PCBs (total)	2.19E-03	7.80E-04
Styrene	1.89E-01	6.73E-02
Toluene	1.31E+00	4.66E-01
Trichloroethene	5.04E-02	1.79E-02
2-Methylnaphthalene	5.29E-07	1.88E-07
3-Methylcholanthrene	3.96E-08	1.41E-08
Acenaphthene	3.96E-08	1.41E-08
Acenaphthylene	3.96E-08	1.41E-08
Anthracene	5.29E-08	1.88E-08
Benz(a)anthracene	3.96E-08	1.41E-08
Benzo(a)pyrene	2.64E-08	9.41E-09
Benzo(b)fluoranthene	3.96E-08	1.41E-08
Benzo(g,h,i)perylene	2.64E-08	9.41E-09
Benzo(k)fluoranthene	3.96E-08	1.41E-08
Butane	4.62E-02	1.65E-02
Chrysene	3.96E-08	1.41E-08
Dibenz(a,h)anthracene	2.64E-08	9.41E-09
1,4-Dichlorobenzene	2.64E-05	9.41E-06
Ethane	6.83E-02	2.43E-02
Fluoranthene	6.61E-08	2.35E-08
Fluorene	6.17E-08	2.20E-08
Hexane	3.96E-02	1.41E-02
Indeno(1,2,3-c,d)pyrene	3.96E-08	1.41E-08
Pentane	5.73E-02	2.04E-02
Phenanathrene	3.74E-07	1.33E-07
Propane	3.52E-02	1.25E-02
Pyrene	1.10E-07	3.92E-08

PTE and Subchapter 17 Analysis
EMR Metal Recycling
March 31 2023

Critera Pollutant	Short Term Emission Rate[1]	Long Term Emission Rate
	(lb/hr)	(tons/yr)
TPM	5.446	15.29
PM10	5.446	15.29
PM2.5	5.446	15.29
NM VOC	5.50	15.44

Annual Operating Hours	5616
Scrubber HF & HCL Removal Eff.	95%

Notes:

1. Emission Rates are from stack test at a representative facility with similar process and control equipment

2. Emission Rates are ERM Modeling Inputs

3. NMVOC emission rate based on 0.25 lb VOC/ton processed uncontrolled, at 440 ton/hr production rate and 95% DRE via control system.

HAP	Long-Term Emission Rate (tpy)[2]	Short-Term Emission Rate (lb/hr)	Long-Term Emission Rate (lb/yr)	Sub 17 Threshold (lbs/yr)	SOTA Requirement (lbs/yr)	Exceeds Subchapter 17 Threshold?	SOTA Evaluation Required?
1,1,2,2-Tetrachloroethane	7.076E-03	2.520E-03	14.15	0.8	600	Yes	No
1,1,2-Trichloroethane	7.158E-03	2.549E-03	14.32		2000	Yes	No
1,2-Dibromo-3-chloropropane	7.246E-03	2.580E-03	14.49	0.02	200	Yes	No
1,2-Dibromoethane	7.200E-03	2.564E-03	14.40	0.08	200	Yes	No
1,2-Dichloroethane	7.009E-03	2.496E-03	14.02	#N/A	#N/A	#N/A	#N/A
1,2-Dichloropropane	6.929E-03	2.467E-03	13.86	4.5	2000	Yes	No
1,3-Butadiene	7.048E-03	2.510E-03	14.10	1.5	140	Yes	No
3-Chloro-1-propene	7.038E-03	2.507E-03	14.08	#N/A	#N/A	#N/A	#N/A
7,12-Dimethylbenz(a)anthracene	1.024E-06	3.646E-07	0.00	0.0007	20	Yes	No
Acrolein	6.983E-03	2.487E-03	13.97	1	80	Yes	No
Acrylonitrile	7.016E-03	2.499E-03	14.03	1	600	Yes	No
Arsenic	9.508E-04	3.386E-04	1.90	0.01	10	Yes	No
Benzene	4.744E-02	1.689E-02	94.88	6	4000	Yes	No
Benzyl chloride	7.034E-03	2.505E-03	14.07	1	200	Yes	No
Beryllium	9.966E-05	3.549E-05	0.20	0.02	16	Yes	No
Cadmium	3.847E-04	1.370E-04	0.77	0.01	20	Yes	No
Carbon Tetrachloride	7.074E-03	2.519E-03	14.15	8	2000	Yes	No
Chloroform	7.092E-03	2.526E-03	14.18	2	1800	Yes	No
Chromium (hexavalent)	8.958E-05	3.190E-05	0.18	0.004	4	Yes	No
Cobalt	3.114E-05	1.109E-05	0.06	0.005	200	Yes	No
Ethyl benzene	2.679E-01	9.540E-02	535.77	19	10000	Yes	No
Formaldehyde	5.829E-01	2.076E-01	1165.76	3.5	4000	Yes	No
Hexachlorobutadiene	6.996E-03	2.491E-03	13.99	2	1800	Yes	No
Hydrogen fluoride	4.774E-01	1.700E-01	954.72	600	200	Yes	Yes
Hydrochloric Acid	4.493E-01	1.600E-01	898.56	900	10000	No	No
Lead	4.698E-03	1.673E-03	9.40	2	20	Yes	No
Manganese	8.251E-03	2.938E-03	16.50	0.6	1600	Yes	No
Mercury	1.500E-03	5.342E-04	3.00	2	20	Yes	No
Methanol	3.842E+00	1.368E+00	7684.19	2000	10000	Yes	No
Naphthalene	4.832E-02	1.721E-02	96.64	1.4	10000	Yes	No
Nickel	1.730E-02	6.161E-03	34.60	0.6	2000	Yes	No
PCBs (total)	2.190E-03	7.800E-04	4.38	#N/A	#N/A	#N/A	#N/A
Styrene	1.889E-01	6.727E-02	377.77	80	2000	Yes	No
Toluene	1.309E+00	4.662E-01	2618.43	2000	10000	Yes	No
Trichloroethene	5.036E-02	1.793E-02	100.71	8	10000	Yes	No

Thermal Oxidizer Emissioins
EMR Metal Recycling
March 31 2023

Source Information	
Control Device ID	CD3
Fuel Used	Natural Gas
Source Description	Thermal Oxidizer

Operating Details	
Maximum Rated Heat Input (MMBtu/hr)	8
Maximum Fuel Usage (MMScf/hr)	0.01
Natural Gas Heating Value (MMBtu/MMScf)	1,020
Maximum Annual Fuel Usage (MMscf/yr)	44.05
Hours of Operation per Heater (hr/yr)	5,616

Pollutant	AP-42 Emission Factors	Units
NO_X	100	$lb/10^6$ scf
CO	84	$lb/10^6$ scf
PM-Total	7.6	$lb/10^6$ scf
PM-10	5.7	$lb/10^6$ scf
PM-2.5	5.7	$lb/10^6$ scf
TSP	1.9	$lb/10^6$ scf
SO_2	0.6	$lb/10^6$ scf
VOC	5.5	$lb/10^6$ scf
Methane	2.3	$lb/10^6$ scf
CO_2	120,000	$lb/10^6$ scf
N_2O	2.2	$lb/10^6$ scf

Criterial Pollutant	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Hourly Emissions (lb/hr)
NO_X	4,405	2.20	0.784
CO	3,700	1.85	0.659
PM-Total	335	0.17	0.060
PM-10	251	0.13	0.045
PM-2.5	251	0.13	0.045
TSP	84	0.04	0.015
SO_2	26	0.01	0.0047
VOC	242	0.12	0.043
Methane	101	0.05	0.018
CO_2	5,285,647	2,642.82	941.18
N_2O	97	0.05	0.017

Other Pollutant	**Ap-42 Emission Factor ($lb/10^6$ scf)**	**Annual Emissions (lb/yr)**	**Annual Emissions (TPY)**	**Hourly Emissions (lb/hr)**	**Sub 17 Threshold (lbs/yr)**	**SOTA Requirement (lbs/yr)**	**Exceeds Subchapter 17 Threshold?**	**SOTA Evaluation Required?**
2-Methylnaphthalene	2.40E-05	1.06E-03	5.29E-07	1.88E-07	#N/A	#N/A	#N/A	#N/A
3-Methylcholanthrene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	#N/A	#N/A	#N/A	#N/A
7,12-Dimethylbenz(a)anthracene	1.60E-05	7.05E-04	3.52E-07	1.25E-07	0.0007	20	Yes	No
Acenaphthene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	#N/A	#N/A	#N/A	#N/A
Acenaphthylene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	#N/A	#N/A	#N/A	#N/A
Anthracene	2.40E-06	1.06E-04	5.29E-08	1.88E-08	#N/A	#N/A	#N/A	#N/A
Benz(a)anthracene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	0.4	20	No	No
Benzene	2.10E-03	9.25E-02	4.62E-05	1.65E-05	6	4000	No	No
Benzo(a)pyrene	1.20E-06	5.29E-05	2.64E-08	9.41E-09	0.04	20	No	No
Benzo(b)fluoranthene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	0.4	20	No	No
Benzo(g,h,i)perylene	1.20E-06	5.29E-05	2.64E-08	9.41E-09	#N/A	#N/A	#N/A	#N/A
Benzo(k)fluoranthene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	#N/A	#N/A	#N/A	#N/A
Butane	2.10E+00	9.25E+01	4.62E-02	1.65E-02	#N/A	#N/A	#N/A	#N/A
Chrysene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	2	20	No	No
Dibenz(a,h)anthracene	1.20E-06	5.29E-05	2.64E-08	9.41E-09	0.04	20	No	No
1,4-Dichlorobenzene	1.20E-03	5.29E-02	2.64E-05	9.41E-06	4	6000	No	No
Ethane	3.10E+00	1.37E+02	6.83E-02	2.43E-02	#N/A	#N/A	#N/A	#N/A
Fluoranthene	3.00E-06	1.32E-04	6.61E-08	2.35E-08	#N/A	#N/A	#N/A	#N/A
Fluorene	2.80E-06	1.23E-04	6.17E-08	2.20E-08	#N/A	#N/A	#N/A	#N/A
Formaldehyde	7.50E-02	3.30E+00	1.65E-03	5.88E-04	3.5	4000	No	No
Hexane	1.80E+00	7.93E+01	3.96E-02	1.41E-02	2000	10000	No	No
Indeno(1,2,3-c,d)pyrene	1.80E-06	7.93E-05	3.96E-08	1.41E-08	0.4	20	No	No
Naphthalene	6.10E-04	2.69E-02	1.34E-05	4.78E-06	1.4	10000	No	No
Pentane	2.60E+00	1.15E+02	5.73E-02	2.04E-02	#N/A	#N/A	#N/A	#N/A
Phenanathrene	1.70E-05	7.49E-04	3.74E-07	1.33E-07	#N/A	#N/A	#N/A	#N/A
Propane	1.60E+00	7.05E+01	3.52E-02	1.25E-02	#N/A	#N/A	#N/A	#N/A
Pyrene	5.00E-06	2.20E-04	1.10E-07	3.92E-08	#N/A	#N/A	#N/A	#N/A
Toluene	3.40E-03	1.50E-01	7.49E-05	2.67E-05	2000	10000	No	No

Attachment D –Level 1 NJDEP Risk Screening Worksheet (RSW)

NJDEP DIVISION OF AIR QUALITY RISK SCREENING WORKSHEET
For Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects

December 2022

Read the Instructions tab carefully before completing this spreadsheet.

Date	3/31/2023
Facility ID No.	50023
Activity ID No.	PCP110005
Facility name	EMR Advanced Recycling LLC.
Facility location	Camden, NJ
File name (.xls)	EMR Risk Screening Worksheet.xlsx

Emission Unit/Batch Process ID No.	U101	Stack height[1]	72.0 ft
Emission Point ID No.	PT281	Distance to property line	100 ft
Equipment ID No(s).	E102	**Annual air impact value, C'**	5.835164 **(ug/m³)/(ton/yr)**
Operating Scenario(s)	OS102	**1-hour air impact value, C'st**	359.8625 **(ug/m³)/(lb/hr)**

KEY:

Long-Term Effects

- **Q =** Annual emission rate (in tons per year) contributed from the source
- **C =** C' x Q = Annual average ambient air concentration
- **URF =** Unit risk factor (for carcinogenic risk)
- **IR =** C x URF = Incremental risk (for carcinogen)
- **RfC =** Reference concentration (for noncarcinogenic effects)
- **HQ =** C/RfC = Hazard quotient (for noncarcinogenic risk)
- **RsIt =** The result of comparing the IR or HQ to the negligible threshold (FER if > threshold, Negl. if <= threshold)
- **FER =** Further Evaluation Required (See Notes for thresholds)
- **Negl. =** Negligible (See Notes for thresholds)

Short-Term Effects

- **Q_h =** Hourly emission rate (in pounds per hour)
- **C_{st} =** C'_{st} x Q_h = Short-term average ambient air concentration
- **RfC_{st} =** Short-term reference concentration (for noncarcinogenic effects)
- **HQ_{st} =** C_{st}/RfC_{st} = Hazard quotient for short-term noncarcinogenic effects
- **RsIt =** The result of comparing the HQ_{st} to the negligible threshold (FER if > threshold, Negl. if <= threshold)
- **FER =** Further Evaluation Required (See Notes for thresholds)
- **Negl. =** Negligible (See Notes for thresholds)

[1] When evaluating risk for diesel engines, use the equivalent stack height consistent with the memo dated June 10, 2009.
Click here to view the "Stack Height Equivalents for Use in First Level Screening Analyses for Diesel Engines" memo.

				LONG-TERM EFFECTS								SHORT-TERM EFFECTS				
	HAP	CAS No.	Air Toxic	Q (ton/yr)	C (ug/m³)	URF [(ug/m³)⁻¹]	IR	RsIt	RfC (ug/m³)	HQ	RsIt	Q_h (lb/hr)	C_{st} (ug/m³)	RfC_{st} (ug/m³)	HQ_{st}	RsIt
1	*	75070	Acetaldehyde			2.2E-06			9					470		
2	*	60355	Acetamide			2.0E-05										
3		67641	Acetone						31000					62000		
4		75865	Acetone cyanohydrin						2							
5	*	75058	Acetonitrile						60							
6	*	98862	Acetophenone						0.02							
7	*	53963	Acetylaminofluorene (2-)			1.3E-03										
8	*	107028	Acrolein	7.0E-03	4.1E-02				0.02	**2.0E+00**	**FER**	2.5E-03	0.894886	2.5	**3.6E-01**	**Negl.**
9	*	79061	Acrylamide			1.0E-04			6							
10	*	79107	Acrylic acid						1					6000		
11	*	107131	Acrylonitrile	7.0E-03	4.1E-02	6.8E-05	**2.8E-06**	**FER**	2	**2.0E-02**	**Negl.**	2.5E-03	0.89912			
12		309002	Aldrin			4.9E-03										
13	*	107051	Allyl chloride			6.0E-06			1							
14		117793	Aminoanthraquinone (2-)			9.4E-06										
15	*	92671	Aminobiphenyl (4-)			6.0E-03										
16		7664417	Ammonia						100					3200		
17	*	62533	Aniline			1.6E-06			1					3000		
18	*	90040	Anisidine (o-)			4.0E-05										
19	**	1309644	Antimony trioxide						0.2							
20		140578	Aramite			7.1E-06										
21	*		Arsenic (inorganic)	9.5E-04	5.5E-03	4.3E-03	**2.4E-05**	**FER**	0.015	**3.7E-01**	**Negl.**	3.4E-04	0.121853	0.2	**6.1E-01**	**Negl.**
22	**	7784421	Arsine						0.05							
23	*	1332214	Asbestos			7.7E-03										
24		103333	Azobenzene			3.1E-05										
25			Barium											0.5		
26	*	71432	Benzene	4.7E-02	2.8E-01	7.8E-06	**2.2E-06**	**FER**	3	**9.2E-02**	**Negl.**	1.7E-02	6.079541	27	**2.3E-01**	**Negl.**
27	*	92875	Benzidine			6.7E-02										
28	**	50328	Benzo(a)pyrene	2.6E-08	1.5E-07	6.0E-04	**9.3E-11**	**Negl.**	0.002	**7.7E-05**	**Negl.**	9.4E-09	3.39E-06			
29	*	98077	Benzotrichloride			3.7E-03										
30	*	100447	Benzyl chloride	7.0E-03	4.1E-02	4.9E-05	**2.0E-06**	**FER**				2.5E-03	0.901497	240	**3.8E-03**	**Negl.**
31	*		Beryllium	1.0E-04	5.8E-04	2.4E-03	**1.4E-06**	**FER**	0.02	**2.9E-02**	**Negl.**	3.5E-05	0.012771			
32	*	92524	Biphenyl (1,1-)						0.4							
33		108601	Bis(2-chloroisopropyl)ether			1.0E-05										
34	*	117817	Bis(2-ethylhexyl)phthalate			2.4E-06										
35	*	542881	Bis(chloromethyl)ether			6.2E-02										
36		7440428	Boron (elemental)						20							
37		7637072	Boron trifluoride						0.7							
38		74975	Bromochloromethane						40							
39		75274	Bromodichloromethane			3.7E-05										
40	*	75252	Bromoform			1.1E-06										
41		106945	Bromopropane (1-)						101					5030		
42	*	106990	Butadiene (1,3-)	7.0E-03	4.1E-02	3.0E-05	**1.2E-06**	**FER**	2	**2.1E-02**	**Negl.**	2.5E-03	0.90329	660	**1.4E-03**	**Negl.**
43	*		Cadmium	3.8E-04	2.2E-03	4.2E-03	**9.4E-06**	**FER**	0.02	**1.1E-01**	**Negl.**	1.4E-04	0.049308			
44		105602	Caprolactam						2.2					50		
45	*	133062	Captan			6.6E-07										
46	*	75150	Carbon disulfide						700					6200		
47	*	56235	Carbon tetrachloride	7.1E-03	4.1E-02	6.0E-06	**2.5E-07**	**Negl.**	40	**1.0E-03**	**Negl.**	2.5E-03	0.90662	1900	**4.8E-04**	**Negl.**
48	*	463581	Carbonyl sulfide						10					660		
49	*	57749	Chlordane			1.0E-04			0.02							
50		108171262	Chlorinated paraffins			2.0E-05										
51	*	7782505	Chlorine						0.2					210		
52		10049044	Chlorine dioxide						0.2					28		
53		75683	Chloro-1,1-difluoroethane (1-) *(HCFC-142b)*						50000							
54	*	532274	Chloroacetophenone (2-)						0.03							
55	*	108907	Chlorobenzene						1000							
56	*	510156	Chlorobenzilate			3.1E-05										
57		75456	Chlorodifluoromethane *(HCFC-22)*						50000							
58	*	67663	Chloroform	7.1E-03	4.1E-02	2.3E-05	**9.5E-07**	**Negl.**	300	**1.4E-04**	**Negl.**	2.5E-03	0.908855	150	**6.1E-03**	**Negl.**
59	*	107302	Chloromethyl methyl ether			6.9E-04										
60		95830	Chloro-o-phenylenediamine (4-)			4.6E-06										
61		95692	Chloro-o-toluidine (p-)			7.7E-05										
62		76062	Chloropicrin						0.4					29		
63	*	126998	Chloroprene			5.0E-04			20							
64		75296	Chloropropane (2-)						100							
65	**		Chromic acid mists (Cr VI)						0.008							
66	**	18540299	Chromium VI (total)	9.0E-05	5.2E-04	1.2E-02	**6.3E-06**	**FER**				3.2E-05	0.01148			
67	**		Chromium VI dissolved aerosols						0.008							
68	**		Chromium VI particulates						0.1							
69	*		Cobalt	3.1E-05	1.8E-04	7.7E-03	**1.4E-06**	**FER**	0.006	**3.0E-02**	**Negl.**	1.1E-05	0.003991			
70	*	8007452	Coke oven emissions			6.2E-04										
71			Copper											100		
72		120718	Cresidine (p-)			4.3E-05										
73	*		Cresol mixtures						600							
74		98828	Cumene						400							
75		135206	Cupferron			6.3E-05										
76		110827	Cyclohexane											6000		
77	*	72559	DDE			9.7E-05										
78		50293	DDT			9.7E-05										
79		615054	Diaminoanisole (2,4-)			6.6E-06										
80		124481	Dibromochloromethane			2.7E-05										
81	*	96128	Dibromo-3-chloropropane (1,2-)	7.2E-03	4.2E-02	2.0E-03	**8.5E-05**	**FER**	0.2	**2.1E-01**	**Negl.**	2.6E-03	0.928585			
82		764410	Dichloro-2-butene (1,4-)			4.2E-03										
83		95501	Dichlorobenzene (1,2-)						200							
84	*	106467	Dichlorobenzene (1,4-)	2.6E-05	1.5E-04	1.1E-05	**1.7E-09**	**Negl.**	800	**1.9E-07**	**Negl.**	9.4E-06	0.003387			
85	*	91941	Dichlorobenzidine (3,3'-)			3.4E-04										
86		75718	Dichlorodifluoromethane						100							
87	*	111444	Dichloroethyl ether			3.3E-04										
88	*	542756	Dichloropropene (1,3-)	7.0E-03	4.1E-02	4.0E-06	**1.6E-07**	**Negl.**	20	**2.1E-03**	**Negl.**	2.5E-03	0.902023			
89	*	62737	Dichlorvos			8.3E-05			0.5							

90		77736	Dicyclopentadiene						0.3								
91		60571	Dieldrin			4.6E-03											
92			Diesel particulate matter			3.0E-04			5								
93	*	111422	Diethanolamine						3								
94		112345	Diethylene glycol monobutyl ether						0.1								
95		75376	Difluoroethane (1,1-)						40000								
96	*	77781	Dimethyl sulfate			4.0E-03											
97	*	60117	Dimethylaminoazobenzene (4-)			1.3E-03											
98	*	79447	Dimethylcarbamyl chloride			3.7E-03											
99	*	68122	Dimethylformamide (N,N-)						30								
100	*	57147	Dimethylhydrazine (1,1-)						0.002								
101		540738	Dimethylhydrazine (1,2-)			1.6E-01											
102	*	121142	Dinitrotoluene (2,4-)			8.9E-05											
103	*	123911	Dioxane (1,4-)			5.0E-06			30					3000			
104	*		Dioxin	See footnote "a"													
105	*	122667	Diphenylhydrazine (1,2-)			2.2E-04											
106	*	106898	Epichlorohydrin			1.2E-06			1					1300			
107	*	106887	Epoxybutane (1,2-)						20								
108	*	140885	Ethyl acrylate						8								
109	*	100414	Ethylbenzene	2.7E-01	1.6E+00	2.5E-06	**3.9E-06**	**FER**				9.5E-02	13.73235	1000	**1.4E-02**	**Negl.**	
110	*	51796	Ethyl carbamate			2.9E-04											
111	*	75003	Ethyl chloride											10000			
112	*	106934	Ethylene dibromide	7.2E-03	4.2E-02	6.0E-04	**2.5E-05**	**FER**	0.8	**5.3E-02**	**Negl.**	2.6E-03	0.922711				
113	*	107062	Ethylene dichloride			2.6E-05			400								
114	*	107211	Ethylene glycol						400								
115		111762	Ethylene glycol monobutyl ether						82					4700			
116	**	110805	Ethylene glycol monoethyl ether						200					370			
117	**	111159	Ethylene glycol monoethyl ether acetate						300					140			
118	**	109864	Ethylene glycol monomethyl ether						20					93			
119	**	110496	Ethylene glycol monomethyl ether acetate						90								
120	*	75218	Ethylene oxide			5.0E-03			30					42			
121	*	96457	Ethylene thiourea			1.3E-05											
122	*	151564	Ethyleneimine			1.9E-02											
123	*	75343	Ethylidene dichloride			1.6E-06			500								
124		16984488	Fluoride						13								
125	*	50000	Formaldehyde	5.8E-01	3.4E+00	1.3E-05	**4.4E-05**	**FER**	9	**3.8E-01**	**Negl.**	2.1E-01	74.91142	55	**1.4E+00**	**FER**	
126		98011	Furfural						50								
127			Gasoline vapors			1.0E-06			15								
128		111308	Glutaraldehyde						0.08					4.1			
129		765344	Glycidaldehyde						1								
130	*	76448	Heptachlor			1.3E-03											
131		1024573	Heptachlor epoxide			2.6E-03											
132	*	118741	Hexachlorobenzene			4.6E-04											
133	*	87683	Hexachlorobutadiene	7.0E-03	4.1E-02	2.2E-05	**9.0E-07**	**Negl.**				2.5E-03	0.896541				
134	**	319846	Hexachlorocyclohexane (alpha-)			1.8E-03											
135	**	319857	Hexachlorocyclohexane (beta-)			5.3E-04											
136	*	58899	Hexachlorocyclohexane (gamma-)			3.1E-04											
137	**	608731	Hexachlorocyclohexane (technical grade)			5.1E-04											
138	*	77474	Hexachlorocyclopentadiene						0.2								
139		19408743	Hexachlorodibenzo-p-dioxin, mixture			1.3E+00											
140	*	67721	Hexachloroethane			1.1E-05			30								
141	*	822060	Hexamethylene diisocyanate						0.03					0.3			
142	*	110543	Hexane (N-)	4.0E-02	2.3E-01				700	**3.3E-04**	**Negl.**	1.4E-02	5.080412				
143	*	302012	Hydrazine			4.9E-03			0.2					10			
144		10034932	Hydrazine sulfate			4.9E-03											
145	*	7647010	Hydrogen chloride	4.5E-01	2.6E+00				20	**1.3E-01**	**Negl.**	1.6E-01	57.578	2100	**2.7E-02**	**Negl.**	
146	**	74908	Hydrogen cyanide						0.8					340			
147	*	7664393	Hydrogen fluoride	4.8E-01	2.8E+00				14	**2.0E-01**	**Negl.**	1.7E-01	61.17663	240	**2.5E-01**	**Negl.**	
148	**	7783075	Hydrogen selenide											5			
149		7783064	Hydrogen sulfide						2					98			
150	*	78591	Isophorone						2000								
151		67630	Isopropanol											3200			
152	*		Lead	4.7E-03	2.7E-02	1.2E-05	**3.3E-07**	**Negl.**				1.7E-03	0.240847	0.1	**2.4E+00**	**FER**	
153	*	108316	Maleic anhydride						0.7								
154	*		Manganese	8.3E-03	4.8E-02				0.05	**9.6E-01**	**Negl.**	2.9E-03	0.867052	0.17	**5.1E+00**	**FER**	
155	*		Mercury (elemental)						0.3								
156	*	7439976	Mercury (inorganic)	1.5E-03	8.8E-03				0.03	**2.9E-01**	**Negl.**	5.3E-04	0.192234	0.6	**3.2E-01**	**Negl.**	
157		126987	Methacrylonitrile						0.7								
158	*	67561	Methanol	3.8E+00	2.2E+01				4000	**5.6E-03**	**Negl.**	1.4E+00	492.3879	28000	**1.8E-02**	**Negl.**	
159	*	74839	Methyl bromide						5					3900			
160	*	74873	Methyl chloride			1.8E-06			90								
161	*	71556	Methyl chloroform						1000					9000			
162		78933	Methyl ethyl ketone						5000					13000			
163	*	108101	Methyl isobutyl ketone											3000			
164	*	624839	Methyl isocyanate						1								
165	*	80626	Methyl methacrylate						700								
166		25013154	Methyl styrene (mixed isomers)						40								
167	*	1634044	Methyl tert butyl ether			2.6E-07			3000								
168		108872	Methylcyclohexane						3000								
169	*	101144	Methylene bis(2-chloroaniline) (4,4'-)			4.3E-04											
170	*	75092	Methylene chloride			1.3E-08			600					14000			
171	*	101779	Methylenedianiline (4,4-)			4.6E-04			20								
172	*	101688	Methylenediphenyl diisocyanate (4,4'-)						1					12			
173	*	60344	Methylhydrazine			1.0E-03			0.02								
174		90948	Michler's ketone			2.5E-04											
175	*		Mineral fibers (<1% free silica)						24								
176	*	91203	Naphthalene	4.8E-02	2.8E-01	3.4E-05	**9.6E-06**	**FER**	3	**9.4E-02**	**Negl.**	1.7E-02	6.194221				
177	*		Nickel and compounds	1.7E-02	1.0E-01	4.8E-04	**4.8E-05**	**FER**	0.014	**7.2E+00**	**FER**	6.2E-03	2.217017	0.2	**1.1E+01**	**FER**	
178	**	1313991	Nickel oxide						0.02								
179	**		Nickel refinery dust			2.4E-04											
180	**		Nickel, soluble salts						0.2								
181	**	12035722	Nickel subsulfide			4.8E-04											
182		7697372	Nitric acid											86			
183		88744	Nitroaniline (o-)						0.05								
184	*	98953	Nitrobenzene			4.0E-05			9								
185	*	79469	Nitropropane (2-)			2.7E-03			20								
186		55185	Nitrosodiethylamine (N-)			4.3E-02											
187	*	62759	Nitrosodimethylamine (N-)			1.4E-02											
188		924163	Nitrosodi-n-butylamine (N-)			1.6E-03											
189		621647	Nitrosodi-n-propylamine (N-)			2.0E-03											
190		86306	Nitrosodiphenylamine (N-)			2.6E-06											
191		156105	Nitrosodiphenylamine (p-)			6.3E-06											
192		10595956	Nitrosomethylethylamine (N-)			6.3E-03											
193	*	59892	Nitrosomorpholine (N-)			1.9E-03											
194		759739	Nitroso-n-ethylurea (N-)			7.7E-03											
195	*	684935	Nitroso-n-methylurea (N-)			3.4E-02											
196		100754	Nitrosopiperidine (N-)			2.7E-03											
197		930552	Nitrosopyrrolidine (N-)			6.1E-04											
198	*	87865	Pentachlorophenol			5.1E-06											
199	*	108952	Phenol						200					5800			
200	*	75445	Phosgene						0.3					4			
201	*	7803512	Phosphine						0.3					70			
202	*	7664382	Phosphoric acid						10								
203	*		Phosphorus (white)						0.07								
204	*	85449	Phthalic anhydride						20								
205	*	1336363	Polychlorinated biphenyls (PCBs)	2.2E-03	1.3E-02	1.0E-04	**1.3E-06**	**FER**				7.8E-04	0.280693				
206	*		Polycylic aromatic hydrocarbons (PAHs)	See footnote "b"													
207	*		Polycylic organic matter (POM)														
208		7758012	Potassium bromate			1.4E-04											
209	*	1120714	Propane sultone (1,3-)			6.9E-04											
210	*	57578	Propiolactone (beta-)			4.0E-03											
211	*	123386	Propionaldehyde						8								
212		115071	Propylene						3000								
213	*	78875	Propylene dichloride			1.0E-05			4								

214		107982	Propylene glycol monomethyl ether						2000								
215	*	75569	Propylene oxide			3.7E-06			30					3100			
216	**		Selenium and compounds						20								
217		7631869	Silica (crystalline, respirable)						3								
218		1310732	Sodium hydroxide											8			
219	*	100425	Styrene	1.9E-01	1.1E+00	5.7E-07	**6.3E-07**	**Negl.**	1000	**1.1E-03**	**Negl.**	6.7E-02	24.20675	21000	**1.2E-03**	**Negl.**
220	*	96093	Styrene oxide			4.6E-05											
221			Sulfates											120			
222		7664939	Sulfuric acid						1					120			
223	***	2699798	Sulfuryl fluoride						150					4170			
224	*	1746016	Tetrachlorodibenzo(p)dioxin (2,3,7,8-)			3.8E+01			0.00004								
225		630206	Tetrachloroethane (1,1,1,2-)			7.4E-06											
226	*	79345	Tetrachloroethane (1,1,2,2-)			5.8E-05											
227	*	127184	Tetrachloroethylene			6.1E-06			40					40			
228		811972	Tetrafluoroethane (1,1,1,2-)						80000								
229		109999	Tetrahydrofuran						2000								
230		62555	Thioacetamide			1.7E-03											
231	*	7550450	Titanium tetrachloride						0.1								
232	*	108883	Toluene	1.3E+00	7.6E+00				420	**1.8E-02**	**Negl.**	4.7E-01	167.7935	5000	**3.4E-02**	**Negl.**
233	*	584849	Toluene diisocyanate (2,4-)			1.1E-05			0.02					0.07			
234	*	26471625	Toluene diisocyanate (2,4-/2,6-)			1.1E-05			0.02					0.07			
235	*	91087	Toluene diisocyanate (2,6-)			1.1E-05			0.02					0.07			
236	*	95807	Toluene-2,4-diamine			1.1E-03											
237	*	95534	Toluidine (o-)			5.1E-05											
238	*	8001352	Toxaphene			3.2E-04											
239		76131	Trichloro-1,2,2-trifluoroethane (1,1,2-)						30000								
240	*	120821	Trichlorobenzene (1,2,4-)						2								
241	*	79005	Trichloroethane (1,1,2-)			1.6E-05								200			
242	*	79016	Trichloroethylene	5.0E-02	2.9E-01	4.8E-06	**1.4E-06**	**FER**	2	**1.5E-01**	**Negl.**	1.8E-02	2.581389	2	**1.3E+00**	**FER**
243		75694	Trichlorofluoromethane						700								
244	*	88062	Trichlorophenol (2,4,6-)			3.1E-06											
245	*	121448	Triethylamine						7					2800			
246	*	1582098	Trifluralin			2.2E-06											
247		526738	Trimethylbenzene (1,2,3-)						60								
248		95636	Trimethylbenzene (1,2,4-)						60								
249		108678	Trimethylbenzene (1,3,5-)						60								
250		25551137	Trimethylbenzene (1,2,3-/1,2,4-/1,3,5-)						60								
251		7440622	Vanadium						0.1					0.8			
252		1314621	Vanadium pentoxide											30			
253	*	108054	Vinyl acetate						200								
254	*	593602	Vinyl bromide			3.2E-05			3								
255	*	75014	Vinyl chloride			8.8E-06			100					180000			
256	*	75354	Vinylidene chloride						200								
257	*		Xylene (m-,o-,p-, or mixed isomers)						100					22000			

If any calculated long-term or short-term effects for an air toxic result in "Further Evaluation Required" (FER) on this Risk Screening Worksheet, a Refined Risk Assessment is required for that air toxic.

NOTE:

* **Clean Air Act hazardous air pollutant**

** **Clean Air Act hazardous air pollutant, but not listed individually (part of a group)**

*** **In addition to the Federally listed HAPs, the Department proposes to regulate hydrogen sulfide (H2S), 1-Bromopropane (1-BP), otherwise known as n-propyl bromide (n-PB), and sulfuryl fluoride, as State-specific hazardous air pollutants**

a Dioxins may be considered to be all 2,3,7,8-tetrachlorodibenzo(p)dioxin), or separated into congeners (contact AQEv).

b PAH or POM may be considered to be all benzo(a)pyrene, or separated into individual PAHs (contact AQEv).

The results are determined by comparing the long-term and short-term effects to the single-source thresholds, listed below.
The threshold value of negligible risk for incremental risk (IR) is 1 in a million (1.0E-06). An IR value less than or equal to 1 in million is considered negligible.
The threshold value of negligible risk for long-term hazard quotient (HQ) for non-carcinogenic risk is 1.0. An HQ less than or equal to 1.0 is considered negligible.
The threshold value of negligible risk for short-term hazard quotient (HQ_{st}) for non-carcinogenic risk is 1.0. An HQ_{st} less than or equal to 1.0 is considered negligible.